

Gen. Bolender Named ASPO-LM Manager

Brig. Gen. Carroll H. Bolender, 47, of NASA Headquarters Office of Manned Space Flight was named manager for the lunar module. Apollo Spacecraft Program Office.

He replaces Dr. William A. Lee, 40, who resigned for personal reasons.

General Bolender, who served as Mission Operations Director for the Apollo 201 and 202 flights, came to MSC last week to begin familiarizing himself with his new job. As ASPO manager for the LM, General Bolender will be responsible for the management of the Lunar Module Program including design, development and fabrication of the vehicle by the Grumman Aircraft Engineering Corp., LM prime contractor.

Before his current assignment in Mission Operations at OMSE, General Bolender was a member of a studies group in the Office of the Chief of Staff, Air Force.

A World War II night fighter pilot in the North African and Mediterranean theaters, General Bolender also has worked extensively with Air Force guided missile and aeronautical systems projects.

He is a native of Clarksville, Ohio, and holds a bachelor of science degree from Wilmington College, Ohio, and a master's degree from Ohio State University. He and his wife, Virginia, have a daughter, Carol, 20 and a son, Robert, 11.

Dr. Lee joined NASA in 1962 as Assistant Director for systems studies in the Office

of Manned Space Flight. He moved to the Houston center in 1963.



TWO NEW MANAGERS—Maj. Gen. Vincent G. Huston (l.) and Brig. Gen. Carroll H. Bolender (r.) are shown at a console in the Mission Control Center during the Apollo/Saturn 201 mission. Huston is the new DOD Manager for Manned Space Flight Support Operations, and Bolender is the new Lunar Module manager for the Apollo Spacecraft Program Office.

Gen. Huston New DOD Head Flight Support Operations

Maj. Gen. Vincent G. Huston USAF is the new DOD Manager for Manned Space Flight Support Operations, replacing Gen. Leighton I. Davis who held the position for seven years. General Davis is now commandant of the Industrial College of the Armed Forces, Ft. Leslie J. McNair, Washington, D.C.

General Huston is Air Force Systems Command Deputy Chief of Staff/Operations at

Andrews AFB and will also serve as DOD Manager for Manned Space Flight Support Operations.

Management of AFSC range activities were realigned recently and a Directorate of Ranges and Space Support was established in the office of the Deputy Chief of Staff for Operations AFSC. This new directorate combined the functions which formerly were assigned to the Deputy for Global Range and National Range Division at Andrews AFB and the National Range Division staff offices at Patrick AFB, Fla., which General Davis commanded.

General Huston is a former commander of the Air Force Eastern Test Range, a position he held from July 1964 until May of this year.

The DOD Manager's full time Manned Spacecraft Center representative is Cmdr. R. E. Colopy with offices located in Building 45.

Adm. Middleton KSC Apollo Head

Rear Adm. Roderick O. Middleton, USN, has been appointed Apollo program manager at Kennedy Space Center, Fla., it was announced recently.

Adm. Middleton goes to KSC from NASA's Office of Manned Space Flight in Washington, where he served as Deputy Director, mission operations and a mission director in the Apollo/Saturn Program. He was assigned to NASA in October 1965.

Prior to his NASA assignment Adm. Middleton was commanding officer of the USS Little Rock and the USS Observation Island; Chief of Staff of Carrier Division 14; and commander, Destroyer Division 142.



William Schneider

Mission Director Position Filled By William Schneider

The National Aeronautics and Space Administration this week named William C. Schneider Apollo Mission Director and Apollo Program Deputy Director for Mission, Office of Manned Space Flight.

As Mission Director, Schneider will be responsible for management, direction, and coordination of mission and flight plans, schedules and associated

Gremlin Garbles Roundup Story's Name for KSC

"You can't win 'em all," the man said.

The same holds true for typographical errors — you can't catch 'em all.

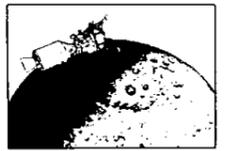
In the second paragraph of the page one story on Surveyor IV in *Roundup's* last issue, Kennedy Space Center came out as "Kentucky Space Center"— a boo-boo the editor is likely never to live down, especially with his colleagues at the Cape.

Closer scrutiny of printer's type proofs, then, are in order. But we are all allowed a few mistakes in this vale of tears.

ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



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AUGUST 4, 1967

NASA Selects Martin For AAP Payload Pact

Martin Marietta Corp., Denver Division, Denver, was selected July 26 by NASA for negotiation of a 27-month contract for payload integration of experiments and experiments support equipment in space vehicles for the manned Apollo Applications Program.

Estimated cost of the cost-plus-incentive-award fee contract will exceed \$25 million. The work will include mission analysis and systems engineering associated with Apollo applications flights in addition to integration of experiments and support equipment.

The contractor will perform tasks for the three NASA Manned Space Flight Centers. Initial work at the Marshall Space Flight Center Huntsville, Alabama, will involve the orbital workshop and Apollo telescope mount. MSC work will involve meteorological and earth resources payloads. Test integration planning and support for launch operations will be performed for the Kennedy Space Center, Florida.

In a competitive definition phase prior to today's selection, Lockheed Missiles and Space Company, Sunnyvale, California, and Martin Marietta,

Denver Division, conducted parallel fixed priced study contracts on Apollo Applications payload integration work at a cost of \$2 million each.

Boeing Gets OK For AAP Saturn Long-Lead Items

NASA was awarded a \$2.275 million cost-plus-fixed-fee contract to the Boeing Company, Seattle for procurement of long-lead time materials for two additional Saturn V flight boosters.

The contract is the first Saturn V procurement in support of NASA's Apollo Applications Program. Boeing, prime contractor for the 7.5 million pound thrust first stage (S-1C) of the Saturn V launch vehicle, is manufacturing 15 stages at the NASA Marshall Space Flight Center's Michoud Assembly Facility, New Orleans, for the Apollo manned lunar exploration program.

Boeing will begin acquiring such items as propellant ducts, liquid oxygen tunnels and fuel tank components for the sixteenth and seventeenth stages. The contract expires January 1, 1968.

MSC Pilots Scheduled For Desert Survival Training

Twenty-one MSC pilots will participate in desert survival training in the Washington-Idaho area next week.

Training will be conducted by the 3636th Combat Crew Training Group (Survival) (ATC), Fairchild Air Force Base, Spokane, Washington. Lectures and classroom work are scheduled for Monday, August 7, at Fairchild. On Tuesday, the group will be transported to the field area near Pasco, Wash., and Lewiston, Idaho, about 130 miles south of Spokane. They will participate in field demonstrations that day and on Wednesday morning.

About noon Wednesday, the group will be split into teams of three pilots each and taken to sites within the desert where they will stay until Friday morning, August 11.

The pilots will return to Fairchild Friday for a review of the week-long training.

It is anticipated that the activities on Monday and Tuesday will be open to the press on a non-interference basis. A news conference is planned at Fairchild Friday. No press activity is scheduled at individual campsites because team isolation is a major factor in the training.

Pilots scheduled for the training are: Vance Brand, John Bull, Gerald Carr, Charles Duke, Joe Engle, Ronald Evans, Fred Haise, James Irwin, Don Lind, Jack Lousma, Thomas K. Mattingly, Bruce McCandless, Edgar Mitchell, William Pogue, Stuart Riosa, Jack Swigert, Paul Weitz, Alfred Worden, Joseph Kerwin, Edward Gibson and Owen Garriott.

Drop Tests Evaluate Land-Landing System

The third in a series of test drops to evaluate the possibility of using a sailing type parachute for a spacecraft land-landing system is scheduled to take place at Fort Hood, Texas, August 9-10.

The test drops are tentatively scheduled, one with a 1500-pound weight and the other with a 2250-pound weight. Members of the Docking and Mechanics Branch of the Structures and Mechanics Division and the Landing and Recovery Division of the Flight Operations Directorate will supervise the air drops of the 90-foot sailing. The drops will be made from a C-119 aircraft.



DOUBLE CHECK ON THE FOOD—Robert L. Corley (r.) manager of the MSC cafeterias and his assistant manager Daniel C. Daughtry make a final check of the serving line before serving of the dinner guests is begun. Both of these food specialists have just recently joined the MSC Cafeteria.

New MSC Cafeteria Managers Pledge Improved Food, Service

Robert L. Corley, the new manager of the MSC cafeterias and his assistant Daniel C. Daughtry plan to institute a few changes in the operation of the food service at the Center, noticeably among the changes will be the addition of a buffet dinner line.

Corley and Daughtry were hired recently by the NASA Exchange-MSFC to manage the two cafeterias here on the site. The cafeteria is a non-profit, not-appropriated fund venture operated by the NASA Exchange-MSFC for MSC employees and

on-site contractors.

In addition to the buffet line, Corley said they plan to make better arrangements for sandwiches. He said that he and his assistant manager have one main objective in the operation of the cafeteria, "to see that the customers get what they would like . . . or to do all they can to keep the customer happy."

Corley said that from time to time the buffet dinner line would specialize in certain types of food, such as Spanish, Italian, Chinese or smorgasbord type dishes.

Other changes will be introduced into the cafeteria operation based on suggestions made in a recent opinion poll conducted on the Center and on the basis of customer desires expressed to the management.

Corley is a graduate of Oklahoma State University, School of Hotel and Restaurant Administration and his experience in the restaurant business includes employment with Holiday Inns of America, the Downtowner Corporation, and since May of 1964, he has been with the Saga Food Service of Menlo Park, Calif. The latter an organization specializing in college and university cafeteria operations. Corley is married and has two children.

Daughtry is a graduate of Baylor University with a BA degree and the Southwestern Theological Seminary, Ft. Worth with a BD degree. His experience in the food service business includes various managerial positions with the Kopper Kettle and Thornhill Cafeteria chains. Prior to coming to MSC, he owned and operated a Seafood Specialty Cafeteria in Lubbock, Tex. He is married and has five children.

The cafeterias located in Buildings 3 and 11 are open from 7 a.m. to 2:30 p.m. each

week day. Breakfast is served from 7 to 8:30 a.m. followed by mid-morning snacks until the lunch service begins at 11 a.m.

MSFN Directors Attend Two-Day MSC Briefing

Directors from 17 of the NASA Manned Space Flight Network (MSFN) stations around the world were at the Manned Spacecraft Center July 24-25 for briefings. The group came to MSC after having spent a week in briefings at the Goddard Space Flight Center, Greenbelt, Md.

Goddard brought their station directors together to discuss documentation, plans, mission schedules and any problems that may arise at the various sites.

During their two-day stay at MSC, the station directors toured Center facilities and received a comprehensive briefing on the Mission Control Center-Houston on Monday. Tuesday the group was briefed by Christopher C. Kraft Jr., Director of Flight Operations and by the divisions within his directorate. The directors left late Tuesday afternoon for their MSFN stations around the world.

Station directors and their station location are: Joseph Garvey, Antigua; Henry Stintz, Ascension; Lawrence Odenthal, Grand Bahama; George Fariss, Goldstone, Calif.; Charles

Force, Guam; Virgil True, Hawaii; John Dowling, M.I.A. (Merrit Island, Fla.); Henry Schultz, Texas (Corpus Christi); Charles Rouiller, Grand Canary Island; Walter LaFleur, Bermuda; Daniel Hunter, Madrid; John Cook, Network Test and Training Facility, GSFC; Bryan Lowe, Canberra, Australia; Lewis Wainwright, Carnarvon, Australia; Donald Gray, JPL, Wing, Tidbinbilla, Australia; Gary Holt and Otto Thiele, both on Apollo Instrumentation Ships.

Also in attendance here at the two day briefing were H. William Wood, chief, Manned Flight Operation Branch, GSFC; Henry Thompson, chief, Manned Flight Support Office, GSFC; Richard Augensten, and Oscar Hayes both of the Manned Flight Operations Branch, GSFC. Two assistant station directors, Lynn Woodward from Texas and Fred Healey from Bermuda were also in attendance.

Do your share for freedom
SIGN UP FOR
U.S. SAVINGS BONDS
NEW FREEDOM SHARES

Aero Club Plans Ground School Instrument Course

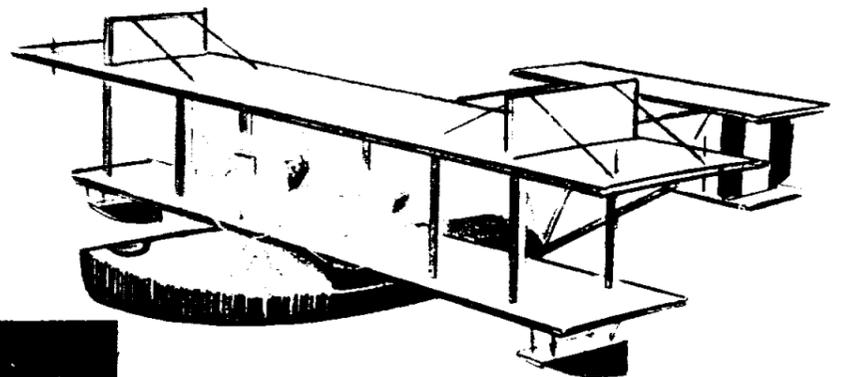
The Aero Club will conduct the long anticipated instrument ground school starting sometime in September, the exact date and place will be announced later.

Sufficient interest has been expressed by the club members and non-members to justify purchasing the Sanderson Visual Instruction system.

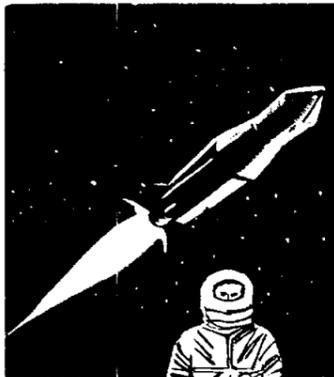
Cost of the instrument course will be \$25 for members and \$35 for non-members. This will include not only the visual aid system but the Sanderson Instrument Pilot Manual, Houston low altitude arrival and departure charts and the instrument approach charts.

The value of the instrument course to private pilots who may not wish to pursue the instrument rating cannot be underestimated. Increased knowledge of FAA facilities, instrument procedures, aircraft navigation and flight equipment and meteorology, can make a safer and more responsible VFR pilot.

Persons interested in joining the club—student or experienced pilot—are urged to contact Ken Downing at 591-3300 Ext. 3444.



May 16, 1919



On this date, Lt. Cdr. A. C. "Putty" Read and his five crewmen skimmed the waves off Newfoundland and headed east across a turbulent Atlantic. Their destination: Europe. During the next eleven days, "Nancy 4" and its crew braved raging storms and heavy fog. Finally, at Lisbon's airport, history was made. The first transoceanic flight was accomplished.

The harsh vacuum of space -
Meteoroid showers -
Extreme heat and cold -
Intense radiation -
These elements combine to form a far more challenging environment than that braved by the crew of Nancy 4.

This is the year of Apollo - the year when excellence in everything we do, really counts

Keep **NASA** the Symbol of Excellence
APOLLO
MANNED FLIGHT AWARENESS

Co-ops Briefed on IESD Operations

Some 130 MSC co-op and junior co-op employees, visiting faculty and summer employees June 30 were briefed on the work and test programs conducted by the Instrumentation and Electronic Systems Division. The briefing was held in the high-bay of the Bldg 14 Anechoic Chamber Test Facility.

IESD Chief Ralph Sawyer outlined for the group major test programs currently under way, such as the docked and near-docked electromagnetic compatibility test, full-scale antenna pattern measurements, rendezvous and landing radar boresight and flight tests, Lunar Module communication antenna tracking test, and electronic systems test program for which IESD is responsible for spacecraft systems, ground station

equipment and data processing equipment.

Sawyer also told the group that IESD had procured and monitored more than 50 contracts with industry for development projects such as the Apollo lunar TV camera, space suit communications and telemetry, vibro-acoustic data systems, spacecraft telemetry, Apollo flush-mounted antennas and adaptive communication space systems.

In testing and evaluating developmental systems, IESD facilities such as the Antenna Test Range, Anechoic Chamber, Radar Boresight Range and Optical Frequency Range are utilized, Sawyer pointed out.

The group next witnessed a laser demonstration by Douglas Lilly, who spoke on the many possible applications of the laser

in communications, surgery, tooling, radar, and in laboratory instruments.

James Coan next demonstrated for the group the lunar TV camera system and its associated system for converting the slow-scan rate to the commercial scan rate for earth viewing.

Following the briefing and demonstrations, the group viewed exhibits of operating laser, digital timers, microcircuits, multicoders, telemetry hardware, multi-band antennas, holograms, various types of cameras and microelectric components. The group also toured the Anechoic Test Chamber.



AN ACRE OF PYRAMIDS—MSC co-op employees, visiting faculty and summer employees tour the Anechoic Chamber in the Instrumentation and Electronic Systems Division's Bldg 14. The facility—walls, ceiling and floor of which are covered by sound absorbing foam pyramids—is used for determining antenna patterns and other types of electromagnetic propagation.

Mariner V Switches To Low-Bit-Rate Data

The amount of information transmitted to Earth each second by the Venus-bound Mariner V was changed last week by an automatic switching event aboard the spacecraft.

At 2:19 p.m. CDT, July 24, Mariner's central computer and sequencer switched the telemetry bit rate from the 33 1/3 bits per second to 8 1/3 bits per second.

The new rate will remain in effect for the duration of the four-month flight. The rapidly increasing communications distance requires the slower transmission of data.

At 2 pm CDT July 20, Mariner V had covered 55,327,194 miles of its 216-million-mile arcing flight to Venus. At the same hour, distance between Earth and the spacecraft was 5,938,090 miles.

Mariner was launched at 1:01 am CDT, June 14 from Cape Kennedy, Fla. Project officials at the Jet Propulsion Laboratory, Pasadena, Calif., reported that all spacecraft systems are operating normally after 50 days in space. JPL manages the Mariner project for NASA.

AFGE Meets August 14

The American Federation of Government Employees, Lodge 2284 will hold its August meeting on Monday, August 14, in Building 30 auditorium at 5 pm. Nominations for first vice president will be made. The program will be based on what AFGE means, so members are urged to be present.

MSC employees are welcome to attend AFGE lodge meetings any time.



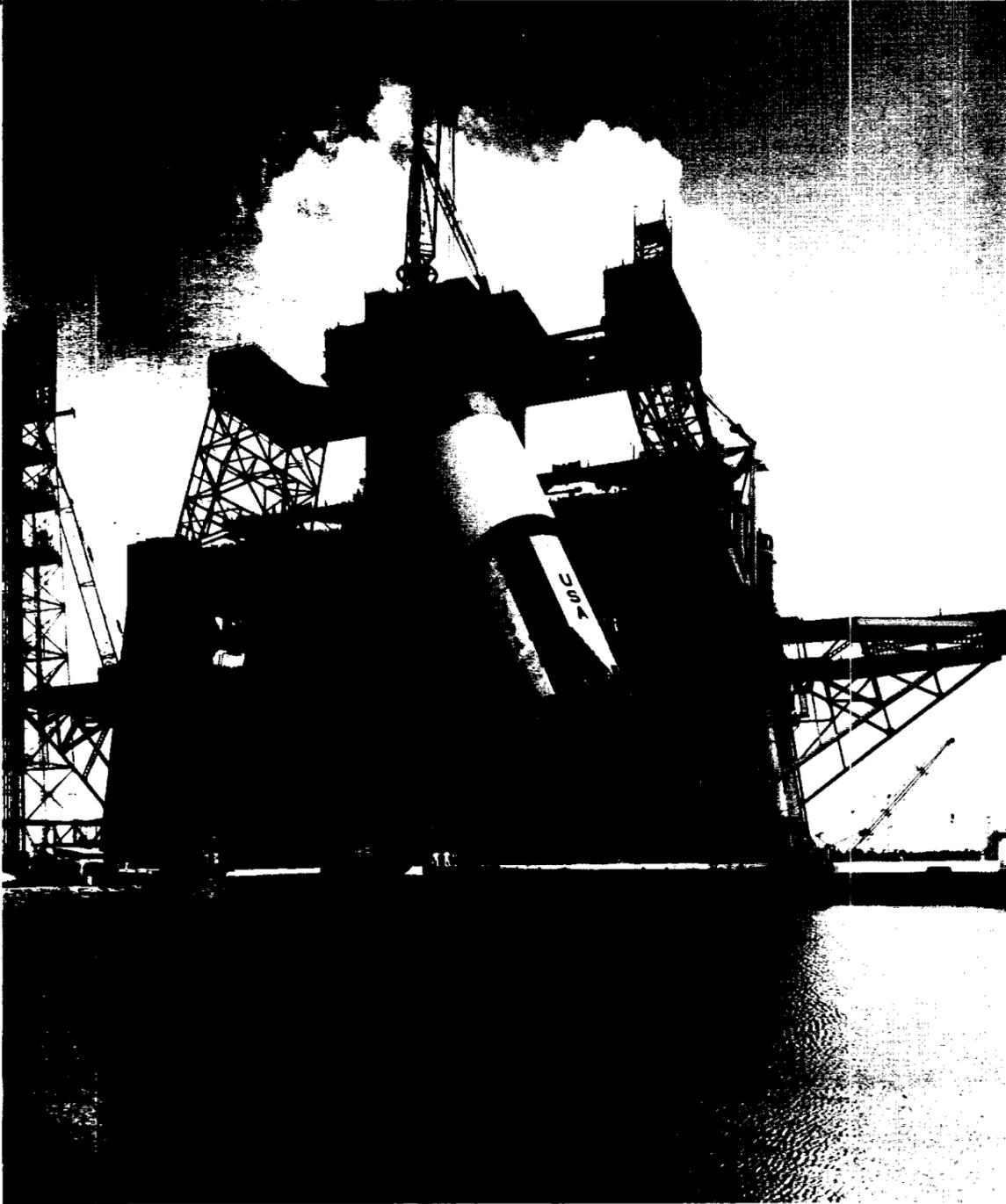
In the Space Age, Wings Are Still "In" — Even Biplanes



NOT-SO-MINIATURE AIRCRAFT—MSC is not under enemy attack when aircraft are seen doing whifferrills over the Antenna Test Range Tuesday afternoons and weekends; it is the MSC Radio Control Club having a flying session. Aircraft range from smaller planes with two and a half foot span on up to the 6 1/2 foot span semi-scale classic Great Lakes Sport Trainer biplane in the left photo. Charles Palermo of North American Aviation is shown preflighting his Great Lakes biplane, which weighs 12 pounds and has a fully proportional control system—including electric brakes for taxiing. No, the airplane in the center photo is

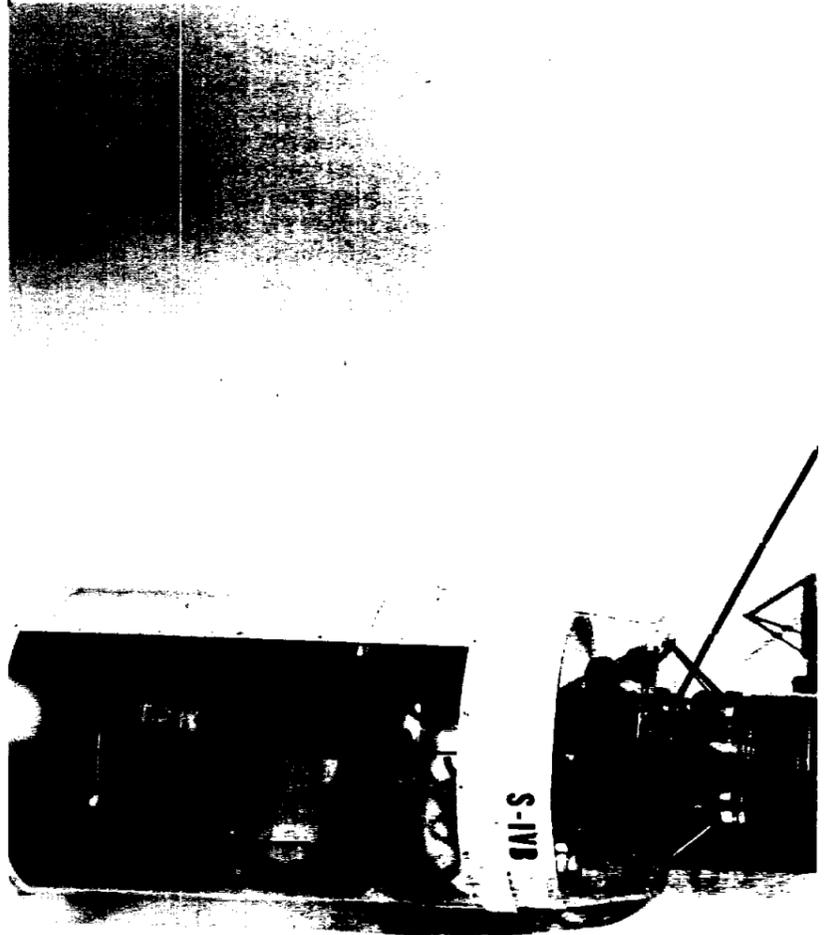
not the Red Baron on a strafing run but MSC-RCC President Bill McCarty's "Acrobat" biplane in flight north of Bldg 14. At right, McCarty fuels up the "Acrobat" prior to flight. The engine starting battery and radio transmitter are in foreground. The "Acrobat" has a span of 4 1/2 feet and weighs six pounds. To join the MSC-RCC, call McCarty at 5393. During flying sessions, autos are not allowed on the Antenna Test Range, but ample parking is available in Bldg 14 parking lots.

Prelude to Big Noise



HEAVY LOAD—The fifth flight version Saturn V S-IC stage places a heavy load on cranes of the Mississippi Test Facility's 407-foot tall test stand as it is hoisted into position for static firing early this month. The S-IC-5 will be the second flight stage to be static tested at MTF, where S-II second stages are also test fired.

Metallic

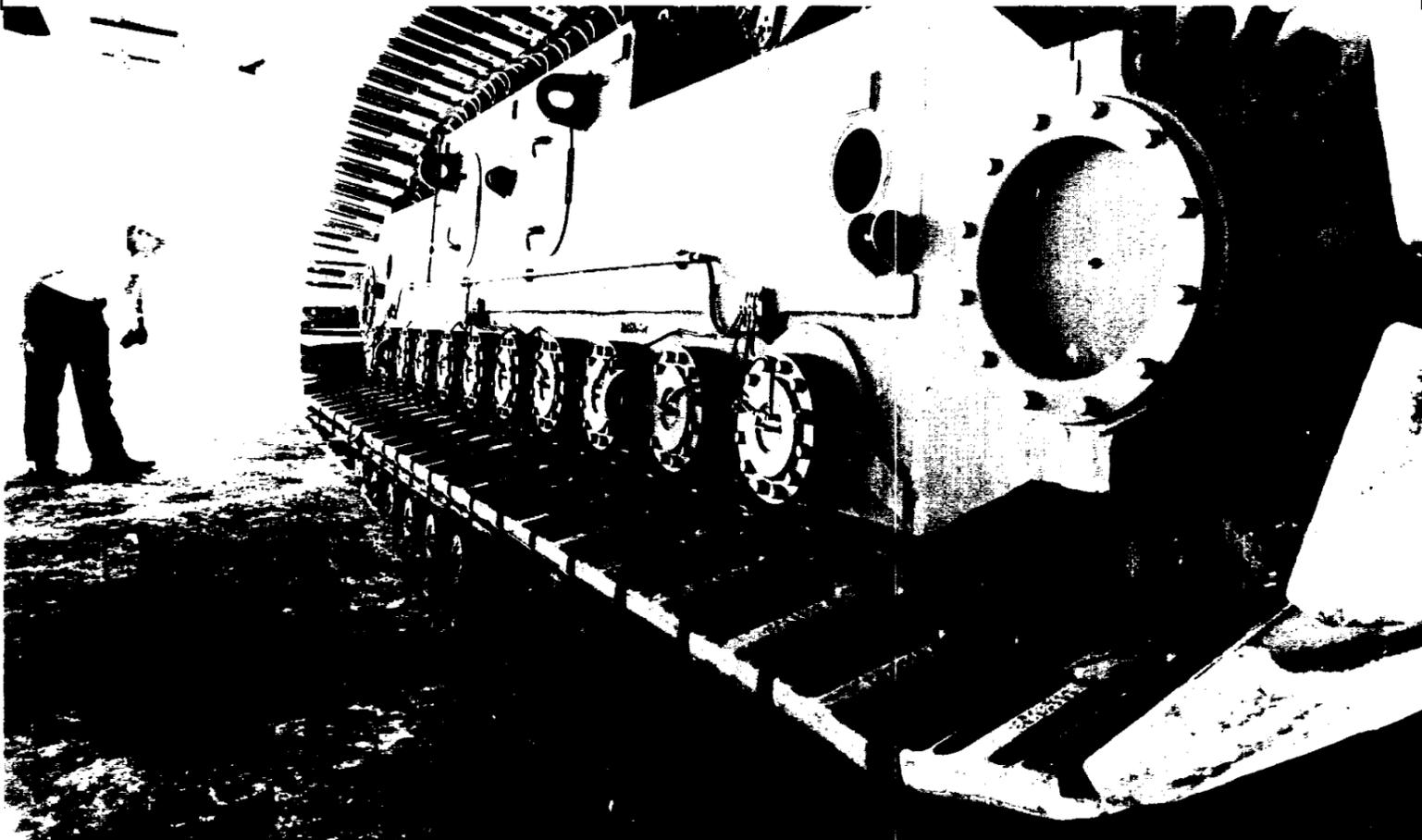


SNAKE AT WORK—A remote handling device—would you believe it is called in a typical proposed application of moving pieces of hardware from one point to another—controllable from either end and was invented at the NASA Marshall Space

PHOTO ROUNDUP

...the space

Watch Your Sore Toe!



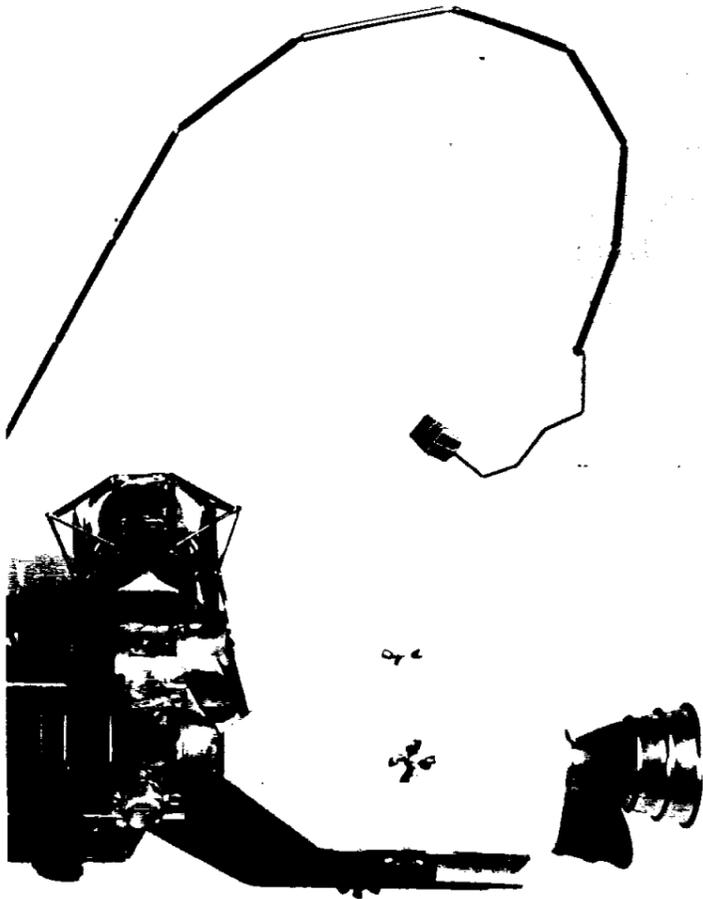
BIG SHOE—One of the four double-tracker crawlers on the Kennedy Space Center Launch Complex 39 Mobile Transporters dwarfs the man checking the drive mechanism. Each crawler is 10 feet high and 40 feet long. Each shoe on the crawler weighs about a ton. The Mobile Launch Towers will be used to move assembled Saturn V stages from the Vehicle Assembly Building at one mile an hour to Launch Complex 39, three miles away.

Wrap-Around



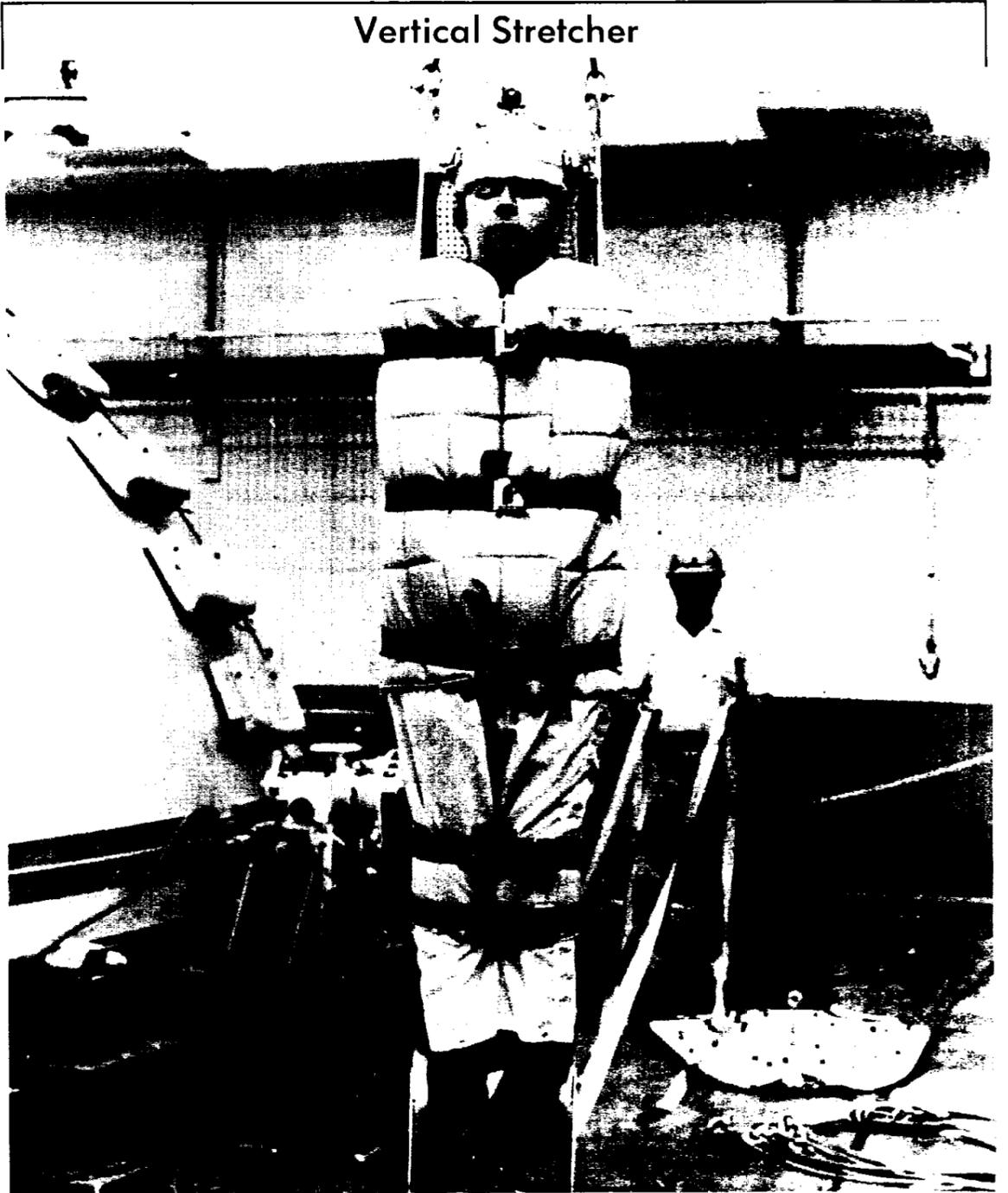
PEEKS AROUND CORNERS—A fiber optic miniaturized vidicon television camera is used to get a clear view of the ground of activity inside launch vehicle. Hundreds of thousands of optical-quality bundles which in turn are inserted into cameras will be used in the first stage of the launch.

Tenacle



a "serpentuator" — is shown on a scale model of an Apollo/Orbital Workshop to another in the zero-g of orbit. The snake-like actuator has hinged joints Flight Center.

Vertical Stretcher



MODERN MUMMY?—Nope. It is a specially designed stretcher for retrieving an incapacitated person from the interior of a Saturn V first stage liquid oxygen tanks during assembly. The tanks have only 18-inch diameter ports for access. The device is shown during operational testing at Mississippi Test Facility. Weighing only 20 pounds, the vertical stretcher is constructed of aluminum and fabric. Other possible applications include mountain rescue, mining operations and battlefield evacuation of wounded.

NDUP

program in pictures

nd Vision



ics bundle with a lens at one end and a provides real-time monitoring to the fuel tanks and of engine performance. ty glass fibers are fused together into stainless steel flexible hose. Two such of Saturn V to monitor engine perfor-

Old Airplanes Never Die . . .



HISTORIC CRAFT—The Constellation Bataan, used during the Korean war by the late General of the Army Douglas MacArthur, is now on duty at NASA Goddard Space Flight Center as one of three instrumented aircraft used for testing Apollo Manned Space Flight Network stations. The Connie still wears national flags on her fuselage of countries visited by General MacArthur.



WELCOME ABOARD—MSC Youth Opportunity Campaign coordinator Diana Dorr, right, discusses personnel processing with the second group of YOC participants at MSC who came aboard last month.

MEANINGFUL EXPERIENCE—

Summer YOC Program Brings 75 Young Participants to MSC

MSC launched its 1967 summer Youth Opportunity Campaign in June when 48 YOC participants reported for duty. An all-day orientation for the participants included discussion sessions on the Youth Opportunity Campaign, MSC organization and mission, two MSC motion pictures and a tour of the Mission Control Center.

Another 27 participants reported for duty July 3 as a result of an increased allocation of spaces in the Youth Opportunity Campaign. This second group brought MSC's total number of people in the program to 75.

The Youth Opportunity Campaign is designed to provide meaningful work experience and training opportunities to economically or educationally disadvantaged young people between the ages of 16 through 21. MSC's prior experience has shown the program to be beneficial not only to the participants, but to the Center as well.

The first Youth Opportunity Campaign was conducted on a nationwide basis in 1965. In two summers' operation, more than two million jobs have been found for America's youth. In addition to the federal government, the program has been conducted by state and local agencies as well as by private industry.

Of MSC's 75 participants, 67 are in Houston and eight are at the White Sands Test Facility. The participants are assigned to organizations throughout the Center and perform various duties in line with their capabilities.

Diana Dorr of Personnel Division's Employee Development Branch coordinates the program.

In addition to the summer YOC program, MSC has two participants in the President's Youth Opportunity Back-to-School Drive — a year-round program under which participants work up to 16 hours each week while attending school.



TELEPHONE PROTOCOL—MSC Chief Telephone Operation Helen Ragsdale, fourth from left, and Laura Louder of Southwestern Bell Telephone Company, fourth from right, conduct a training session in telephone techniques for six Youth Opportunity Campaign participants. YOC participants, left to right, are: Proxie Hawkins, Pamela Jackson, Jeffrey Ware, Beatrice Levy, Mirian Kincheon and Charlotte Smith, who also took part in MSC's Vocational Office Education program during the spring.

The *Roundup* is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.

Director Dr. Robert R. Gilruth
 Public Affairs Officer Paul Haney
 Editor Terry White
 Staff Photographer A. "Pat" Patnesky

Slow-pitch Soft Ball League

Standings as of July 28

American Division			National Division		
TEAM	WON	LOST	TEAM	WON	LOST
Animals	6	0	Packers	7	0
Mets	7	2	TSD	7	1
Apollos	6	2	FSD (Supporters)	6	2
Charlie Brown			LRD-Gold	6	3
All-Stars	6	3	Marauders	5	3
Procurement & Contracts	4	4	LRD-Blue	4	4
RMD	4	5	Lunatics	3	6
CSB	3	4	SMD	3	6
GRPB	3	4	Rats	2	5
Hustlers	3	4	Old Timers	2	6
CAD	3	5	MPAD-G&PB	2	6
S&AD Comets	2	7	Coast Guard	2	7
BeePees	1	8			

Creativity on Display



MEDIC ART—MSC Dispensary employees in late July held a two-week art show in the Dispensary Lobby. Exhibited were paintings in oils and other media, sketches and mosaics—all by members of the Dispensary staff. Dispensary X-ray technician M. Gail Murphy casts an appreciative eye toward the gallery among the hypo needles.

EAA Sponsors Back-to-School Teen Dance

"The Moving Sidewalks," well-known for their hit record "Ninety-Ninth Floor," will provide the music for the EAA-sponsored Teenage Back-to-School Dance, August 11 from 8 to 12 pm, at Sylvan Beach.

Go-Go girls, dance contests, prizes, and free refreshments will add to the fun. Teenagers of MSC and contractor employees are invited to bring their friends. Dress is casual. (No shorts or slacks for the girls, and no Bermudas for the boys.)

Tickets at \$1 each can be bought from the following EAA Representatives: Bobbie Wright, Bldg 2-Ext 4031; Bob Merrifield, Bldg 4-Ext 3621; Kitty Cornish, Bldg 30-Ext 3128; Peggy Chambers, Bldg 16-Ext 2403; Tim White, Bldg 31-Ext 2005; Sue Richardson, Bldg 45-Ext 4616; and Jerry Haptonstall, EAFB Bldg 317-Ext 7361.

For Service



Harold T. Clayton
 RASPO-Downey
 15-Year Service Award

Flag Football League Organization Meet Set

A flag football league formation meeting is scheduled for 5 p.m., Wednesday, August 9, in Room 651 of Building 2. Anyone interested in forming a flag football team is requested to attend. No team rosters are needed at this meeting.

Roundup Swap-Shop

(Deadline for classified ads is the Friday preceding Roundup publication date. Ads received after the deadline will be run in the next following issue. Send ads in writing to Roundup Editor, AP3. Ads will not be repeated unless requested. Use name and home telephone number.)

FOR SALE/RENT-REAL ESTATE

4-bdr, 2-bath in Clear Lake City. Nice yard all built-ins and drapes. Avail Sept. 1. 6% assumption available. 1923 Reseda Dr. Allen D. Cummings, HU 8-0316.

4-bdr, 2-bath, living rm, dining rm, family rm, carpets, drapes, central air, dishwasher, disposal, 2-car detached garage, swimming pool, water front privilege, fishing pier, boat ramp, 100x145 lot—Baywood Sub-division, Seabrook. C. J. Hall, after 5 p.m. GR 4-2054.

3-bdr, ranch style w/detached garage and boathouse. 3 wooded acres on Clear Creek. Friendswood, Fm Rd 528. Price: \$35,000. Ray Darrah at Holloman AFB. Dial 840 and ext. 3760 or 7075.

719 Timber Cove Drive, Timber Cove. Recently redecorated 4-bdr, 2 1/2 bath, 2 1/2 car garage. 1/2 block from private boat ramp. Well financed 5 1/4% loan, reasonable equity, payments \$167/mo. Major John C. Marshall, 877-3100 or HU 3-3441.

4-bdr, 2-bath, wooded lot, fenced, private park and pier privileges. 2900 sq. ft., carpeted, drapes, double fireplace. Immediate possession. Assume 6% loan. 303 Shirleen Dr., El Cery, Al Mardel, 877-3248.

Clear Lake City 4-bdr 2-bath rustic (used brick) home. Price: \$21,500. Refinance or assume existing 6% loan and buy equity. On oversized corner golf course lot. A. W. Johnson, HU 8-0419.

4-bdr, 2-bath in New Meadowbrook (near Houston Intl. Airport) modern brick, 2-car garage, central air/heat, carpets, drapes, built-ins, separate dining, paneled den, fenced yard, covered enclosed patio, lawn sprinklers, sell equity against 5 1/4% conv. loan (payments \$159 total) or refinance. John H. Boynton, MI 3-0926 or HU 4-9319.

3-bdr, 2-bath, brick house in Huntsville, Alabama 5 1/4% VA, payments \$121.65/mo. \$2500 equity for \$350 (includes tax prepayment and ins.). Four ft. chain-link fence, close to schools and shopping (1 mi.) Corner lot 120' by 150'. W. H. Hooper, GR 1-2823 in La Porte.

2 lots, 100' x 114' ea., fertile sandy loam, large pine trees, all weather road, elec. power avail. Maint. fee of \$1.50/mo provides access to 9 acre lake. Country club, and swimming pool, 5000 acres hunting, sandy beaches along San Jacinto River 1/2 mi. away. Lots located in Tall Timbers Development, 7 miles south of Conroe off Hwy 75. Price: \$950 ea. or both for \$1800. Will accept monthly payments. W. H. Hooper, GR 1-2823 in La Porte.

Heavily wooded, 90 x 200 ft. corner lot in Dickinson, Oak Hollow Subdivision. Surrounding lots already developed. \$4500. D. W. Wade, MI 9-0554.

El Lago Estates equity—Spanish w/large atrium, 3-bdr, fireplace, built-ins, drapes. Call Kathleen Keller at GR 1-4343, or GR 1-3472.

3-1-1 newly painted; 14' x 24' scnd covered patio 1 yr old. Large corner lot. Fenced back yd. New carpet and hot water heater. Three blocks from Genoa Elementary School. \$600.00 down and \$87.00/mo. B. W. Pratt, 946-7357.

Two story, 4-bdr, 2 1/2-bath, l.r., separate d.r., family rm, 2-car garage, large lot, sewers & paved streets. Near Pearland schools. Assume equity—\$22,750. HU 5-2972.

3-2-2 in Seascope. Landscaped, central air, drapes, fireplace. Excellent condition Sub-division swimming pool plus fishing and boat launching facilities on Bay. Assume 5 3/4% (5 1/4% in service) loan. Reasonable equity. Avail. Sept. W. Casey, after 5 p.m., GR 4-3302.

Brick, 4-bdr, 2-bath, living and family rm, central air, 2-car garage, fenced yard in Sun Valley, Edgebrook exit of Gulf Freeway. Assume loan, \$1100 equity, \$155/mo. (taxes and ins. included). C. R. Lewis, HU 6-5207.

Lot at Hilltop Lakes near Normangee. On golf course. Next to landing strip. Owner will finance. Worth \$7,000—selling for \$5,995 w/10% down. Burl Kirkland, GR 4-3420.

Dickinson — 4-bdr, 2-baths, separate dining rm, large family rm, w/fireplace, 2200 sq. ft. living area. Oversize 2-car garage, scnd porch. Heavily wooded lot 96 x 150 ft. Equity \$6500 with 5 3/4% loan. Total price \$26,650. Payment \$162/mo plus ins. Paul Thomas, 534-5354.

Nassau Bay: Large waterfront lot 300 ft. deep, 133 ft. in channel, near Marina and Yacht Club. \$11,500. Owner D. Bell Phone: 591-2340. If no answer, call HU 3-2681 8 to 4:30 p.m.

For Rent: Unfurnished duplex, 2-bdr., 1 1/2-bath, air, central heat, garage, patio, no children. \$125/mo, water and yd work paid. Mrs. Webb, 932-381, Webster.

FOR SALE—AUTOS

1961 Sunbeam Alpine, extra clean, in excellent condition radio and heater, red with black top and tonneau cover. Uses no oil. Below retail. \$550.00. William C. Douglas, HU 7-0446.

1967 Caprice, 2-dr htdp, fully equipped. Financing can be arranged. Frank Borman, Seabrook, 877-2275.

1962 Ford Fairlane, 49,000 miles, green, white, new res, has sticker and plates, runs perfect. \$500. John Bergeron 932-2148.

64 MGB, radio, heater, tonneau, luggage rack, MG mitton. \$1495. J. C. Whitney, 946-6361 (nights).

1965 VW sedan, excellent condition, 18,000 miles, original owner, \$1200.00. J. H. Levine, MI 9-2569.

1950 GMC pickup, horrible combination of colors, 250,000 miles, but runs good—make offer. Dave Massaro, HU 2-7976.

1957 Cadillac "62" series, 4-dr, hardtop. Good tires, all accessories operable. \$200.00. E. R. Hillje, MI 9-2065.

1963 Volvo sports coupe GT 1800 s. Over-drive, Blaupunkt radio, ivory w/red interior. \$1600. E. R. Hillje, MI 9-2065.

1961 Ford, 9-passenger station wagon w/air, radio & heater. Good condition, \$350.00. Jim Willis, 944-3647.

1962 Pontiac Bonneville, 47,000 miles actual, immaculate, Quinn, GR 4-2489.

1967 Triumph TR-4A, grill mounted fog and driving lights, center console w/lighter and second speaker, radio, heater, Michelin X's, professionally de-chromed hood. Record of maintenance available. Excellent condition \$2950. Dave Peterson, GR 4-3681.

1957 Buick Century, 4-dr, hardtop. New seat covers, power steering, brakes and windows. Good running and dependable. Total price only \$395.00. F. Park, HU 7-1255.

1964 Dodge Dart, white, 2-dr, V-8, stick shift, clean, good condition, extras, 38,000 actual mileage. R. Hill, 471-4305.

1967 Corvette, convertible, 427 engine—3 dual carbs, air, FM radio, Firestone wide ovals, 2400 miles. R. F. Gordon, 591-2389, Nassau Bay.

1967 Austin Healey 3000 Mk III red w/black interior & top, immaculate condition—6900 miles. Must sell to buy a Ferrari. John Hirasaki, Nassau Bay 591-3779.

57 Metropolitan. New Brakes, new clutch, new transmission seals. Radio, heater. Cheap transportation, \$200.00. Burl Kirkland, GR 4-3420.

FOR SALE—MISCELLANEOUS

Fender Stratocast guitar, new paint, 3 pickups, tremolo bar; Princeton reverb amp, new condition, has vibrato and reverb pedal, 30-ft cord. Guitar alone \$150; amp alone \$100; both \$225. John Bergeron, 932-2148.

Reel power mower — \$25.00 excellent; work bench—\$5.00; antique kraut board \$45.00; other antiques. J. H. Levine, MI 9-2569.

18,000 BTU G.E. air conditioner. Age unknown and doesn't work—make offer. Dave Massaro, HU 2-7976.

Canon FT QL f/1.8 camera, sunshade, filters, case, strobe flash. Used for about two rolls. Sell for \$100 off new price, Goodrick, X 5543 (no home phone).

Beginner's sailing lessons for adults. Goodrick X 5543 (no home phone).

14' 7" wood, fiberglass coated, fishing boat, 35 hp engine, and trailer. Extras. \$250.00. Marlo, MI 4-3147.

Apricot mini-toy poodles. AKC registered, line bred. Three generation pedigree furnished, paper trained. J. Fredrickson, Dickinson, 534-2694.

Bassinet, white, w/pad, very good condition, used for one baby, \$7.50. A. F. Smith, HU 8-3238.

82-Piece Set of China, Melrose pattern, brand new, \$75. Ann Keller, RE 3-2217.

Complete stereo system. Allied 24 watt amplifier, Garrard automatic turntable, two Knight 12 inch speakers in cabinets. Works very well, \$50.00. Two brand new Utah HS-1B speaker systems, still sealed in original carton. Cost \$89.95 ea., will sell both for \$120.00. Frank Greene Nassau Bay 591-2305.

One male and one female AKC registered Beagles, \$20 and \$25—Jim Willis, 944-3647.

Argus C-3 camera w/flash attach. \$10, Garland Bauch, NA 2-4380.

Powder table w/chair, French Provincial

in fruitwood. \$80. Charles Lauritzen, 944-3615.

Graf Apsco microscope for sale; 5x and 10x eyepieces; 10x, 44x, and 100x objectives; substage condenser; mechanical stage; and substage lamp. H. T. Christman, 877-4751.

32 pieces of Reed & Barton Sterling Silver, Maraborough pattern, will sell for 1/2 of list price. Also rebuilt Electralux Cleaner w/new attachments, used twice, \$15. Verby Balinas, 946-3907 after 5.

25 ft. Chriscraft w/185 HP engine; major overhaul—located at Boat Town \$2,150.00. James Allison, HU 4-4867.

Sorrel and white Overo registered Paint mare, perfect for children and 3 wk old registered colt. Both \$250.00. John S. Lewellyn, OL 8-4039.

Tennis lessons by former tennis coach. \$5.00 p/hr. One or two persons per session. Travis Moebes, League City 932-3758.

Puppies—half Dachshund. 8 wks old, weaned, wormed, partly paper trained. \$5.00 ea. Paul Marchal, Dickinson, 534-3021.

Executive desk w/matching armed swivel chair. Quality line furniture. Like new, only \$150. Park, HU 7-1255.

Male-Boston Terrier AKC registered; black and white — 9 wks old. Ideal family pet, G. D. Waddell, 932-3881. League City.

Camper, 1965 Heron executive 10 1/2 ft.; slip-on completely self contained. Three burner gas range w/oven—Gas/elec refrigerator—dual lighting — shower — marine toilet w/15 gal. holding tank—hot water heater—center dinette—sleeps four comfortably—loading jacks. Excellent condition; cost new over \$3100.00, take \$1800.00. Underhill, MI 9-4974 after 6:00 p.m.

3HP edger-trimmer. Total running time 2-3 hrs. Complete service policy in effect. Cost 90. Sell for \$45. See in Clear Lake City. A. D. Cummings, HU 8-0316.

Buy, sell, or trade United States coins. Almost all dates and series after 1900, many before. Dick Osburn, 591-2186.

Used Selmer Bundy Clarinet, fairly good condition, used 3 1/2 yrs. \$35.00, contact Marilyn Hicklin, MI 3-1782.

Twin-size bed w/box spring, mattress, and metal frame on casters, no head or foot boards, \$10. H. Erickson, MI 9-0396.

Eico Tri-band SSB transceiver plus AC power supply. Excellent condition. Both for \$230. Frank Loch, GR 1-4700.

8 in. table saw, 4 1/2 in. jointer, wood turning lathe, jig saw, \$300. Burl Kirkland, GR 4-3420.

Two window air cond. units: Chrysler Air-temp, 2 HP, Friedrich 1 1/2 HP both about 5 yrs old and in good condition, \$125 ea.; 2 HP Briggs & Stratton 4 cycle motor, horz. crank shaft, recoil starter . . . \$15; car top carrier . . . \$9; Mrs. Virginia Ellis, HU 7-1040 after 4:30 p.m.

Misses wardrobe size 10. Beige silk suit, yellow silk brocade tent, aqua silk, white cocktail, black and white chantung, skirts and blouses, also winter suits, jumpers and dresses. All below \$5. Some like new but no longer fit. Phone 591-2340.

Coronado 25—equipped, only 5 mo. old. 25' fiberglass sloop, sleeps 5. Dinette,

Presents Paper



SPEAKER—Virginia R. DeFoy of Photographic Technology Laboratory presented a paper on "Photographic Retrieval Systems" before the Professional Photographers of America convention July 27 in Portland, Ore.

galley, head, New 9 HP elec-starting auxiliary. \$6500. J. L. Green, 591-4171.

Tandberg 4-track stereo tape recorder in the best of condition. This \$400 instrument is priced right for a quick sale, \$150.00. Contact Capt Jenkins, HU 7-1400, Ext 234 or 563.

Registered Half Arabian Gelding w/papers, 17 mo. old, wonderful disposition. Sell or trade. Worth \$300 but would take \$250. Capt Jenkins, HU 7-1400, Ext 234 or 563.

1959 Zenith Table Model TV, black & white. Fair condition 22 in. scrn—\$50.00. Mrs. E. H. White, II,—877-2231.

WANTED

Ride wanted from Birdsell & Memorial or will meet downtown, Austin at Hadley. Hours 8:30 to 5:00, Bldg. 2. Bill Drastata, UN 4-0553 after 6:00.

Want to buy from owner 3 or 4-bdr nicer home. Prefer Colonial style on large wooded lot. Bob A. Roberts, HU 8-2281.

To Rent: Seaine, 100-200 ft. Or to buy used Seine if reasonable. Marlo, MI 4-3147.

Car pool from 2707 Pecan St., Alvin, Texas, to Bldg 2, 8:30 a.m. to 5 p.m., David Christiansen, OL 8-2621.

Want to buy: TV, air conditioner, sailboat, 14' or smaller, and HI-FI outfit, working or not. Don Frisbee, 946-3578.

Need to join Dickinson car pool. John Clawson, 3510 Maple Dr. 8:30 to 5:00. Ext. 2231.

Two used cornets. Wes Hjernevik, Dickinson 534-5797.

Clarinet for beginning student in junior high school band. Earl Rubenstein, 877-3288.

Lady programmer wants same or similar to share apt. near NASA. Susan O'Connor, HU 6-5252.

Need a ride from the North Side area or will meet downtown, August 7-16, 7:30 to 4:00. Cheryl Martin, HI 2-5327 or ext. 3136.

Ride needed from Sun Valley area to

Beginner Course To Be Offered By Spanish Club

This is the time of year when Mexico calls — Monterrey, Mexico City, Acapulco—and a speaking knowledge of Spanish allows the traveler to get off the beaten tourist track with no fear of frustrating communication problems.

As a part of its membership training program, the MSC Spanish Club is planning in the near future to offer beginner Spanish conversation courses. The Club was formed as a focal point for MSC and contractor employees who have an interest in learning conversational Spanish and in learning more about Latin America, its peoples and its cultures.

Prof. Luis Garcia of the Garcia Schools of Spanish will speak at the next Spanish Club meeting August 18 at 5:15 pm in Room 108, Bldg 13. He will discuss these courses and answer questions about them.

For additional information about the MSC Spanish Club and its activities, call Norm Chaffee at 4871.

Picnic to Have Circus Theme

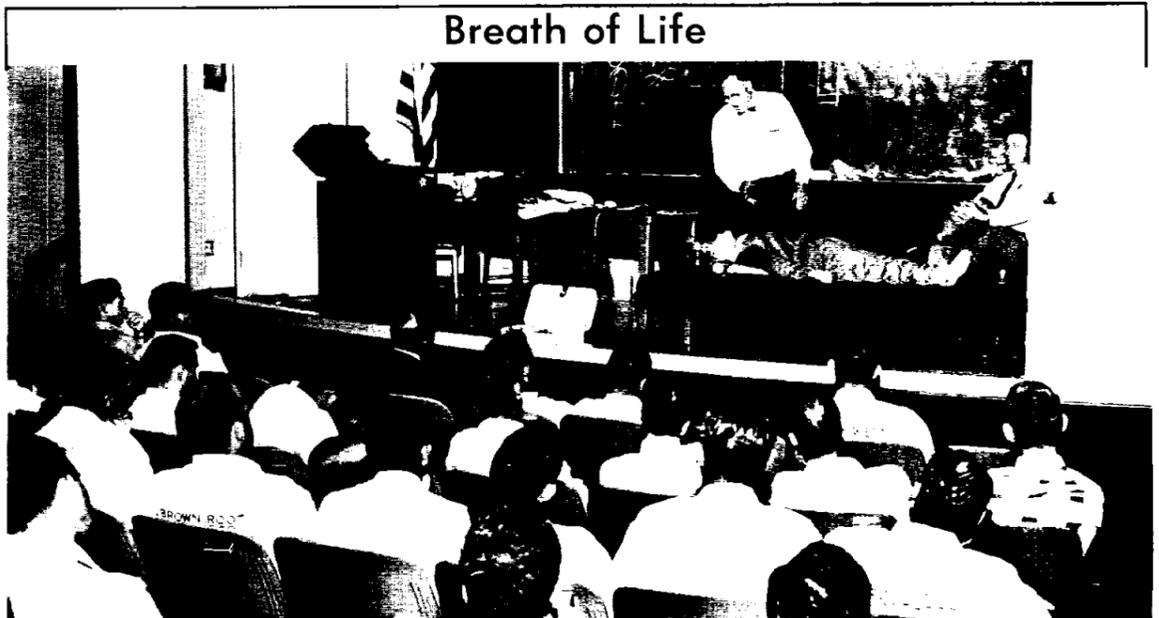
With a theme of "Under the Big Top", the fifth annual MSC Picnic will attempt to recapture some of the nostalgia of the days when the circus was in the big tent with sawdust on the ground and music was from a steam calliope instead of a tape recorder.

The picnic will be held October 14 at Galveston County Park in League City. Volunteers are needed to help in all the many jobs of organizing and planning the picnic. Call chairman Betty Schick at 3371 or cochairman Rita Sommer at 2397 to volunteer.

MSC, Bldg. 30, 8:00-4:30. Beth Grimsley, HU 6-5016 or Ext. 2131.

Ride wanted from Golden Acres in Pasadena to Bldg. 45, hrs. 8:00-4:30. Georgia Shipp, HU 7-1317.

Young lady to share 1-bdr apt. at Bay House Apts. beginning Sept. 1. Dianne Milner, Nassau Bay 591-2509 after 5:00 p.m.



SHOCK EFFECT—Houston Lighting & Power safety supervisor C. A. Koch explains to 153 MSC and contractor employees the effect of electrical shock on the human body during a lecture July 7. The young lady on the cot is Resusci Anne, a life-size female mannequin used for resuscitation demonstrations. MSC Fire Department first aid instructor Albert Groda sits at Koch's left.



ORIENTATION SESSION—An orientation session for these new employees of the Engineering and Development Directorate was conducted by E. H. Yeater. This is part of the MSC new plan to indoctrinate new employees concerning policies and procedures of their directorate.



NEW EMPLOYEE ORIENTATION—New clerical employees of the Administration Directorate are shown during an orientation being given by Billie Barmore, secretary of the director of administration.

New-Hire Orientation Revamped To Speed Employee's Adjustment

The New Employee Orientation Program administered by the Employee Development Branch has recently been revised to more effectively aid the adjustment of recently-hired employees. Formerly a three-hour consolidated program, presented periodically, the new program is organized to "tailor" appropriate information to each new employee over a thirty-day period.

The program begins with the arrival of the new employee at the Administrative Section of the Personnel Division, where in addition to completing the necessary forms, he receives an introduction to the rules and regulations of the Civil Service System and some of the policies and benefits of employment with MSC.

After finishing this part of his processing he meets the Personnel Division representative

(Personnel Management Specialist) who is responsible for personnel service to the new employee's organization. In addition to an explanation of MSC personnel policies, the personnel representative answers any questions that the employee may have and introduces the employee to his supervisor.

The supervisor continues the orientation program by introducing the new employee to his associates, and by describing the new employee's responsibilities and other specific work policies and procedures.

In addition to the first day activities, each new employee receives a briefing by his directorate, which includes the history of the organization, its interface with other organizations, and any additional information the directorate wishes to

present.

There are two sections of this part of the orientation, one for professional employees emphasizing technical aspects of the organization and another for clerical and secretarial employees stressing their specific responsibilities. New employees will receive their briefing during the first month.

The "new" new employee orientation is completed with a presentation and tour of facilities, provided each month by the Public Affairs Office.

The entire program is directed toward giving each recently inducted employee as much information as possible about NASA and MSC, and specifically about his own status in the position assigned to him. The overall objective is to help him adjust to MSC as quickly (and painlessly) as possible.

Last Gemini Hardware Soon to Leave Orbit

The final earth orbiting remnant of the Gemini space program will soon end its career in space as it makes a flaming entry into the earth's atmosphere sometime the middle of this month.

The 26 foot-long and 60-inch diameter object from the Gemini program still orbiting the earth about every 90 minutes is an Agena which was the target vehicle for the Gemini VIII mission on March 16, 1966.

Agena VIII built by Lockheed was launched March 16, 1966 by an Atlas launch vehicle from Launch Complex 14, Cape Kennedy at 10 am EST and was followed 101 minutes later by the Gemini VIII atop a Titan vehicle with Neil Armstrong and David Scott as the crew. This was the prelude to one of the major milestones in the Gemini program, rendezvous and docking of two vehicles in space.

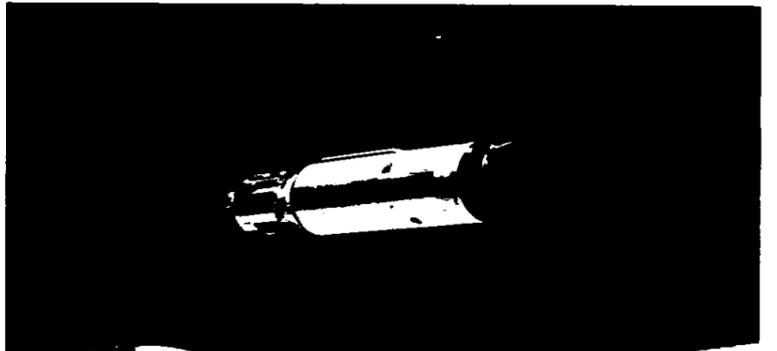
After undocking from the Gemini VIII spacecraft the Agena target vehicle was maneuvered several times before being placed into a 220 nautical mile circular orbit as a potential target for later flights. The last verified radio contact with the Agena VIII was made eight days after its launch on March 24 at about 1 pm CST by the Guaymas,

Mexico tracking station as the vehicle was making its 122 revolution around the earth.

The AGENA VIII vehicle was to once again serve as a target when on July 21, 1966 it became part of the first dual rendezvous of vehicles in space. The Gemini X spacecraft with its crew John Young and Michael Collins began their mission on July 18 which included rendezvous with the Agena 10 target vehicle in their fourth revolution around the earth, and then three days later the rendezvous with the Agena VIII. During this rendezvous Collins went outside his spacecraft and removed a micrometeorite package from the Agena VIII, making the first contact with a "dead" satellite in space.

The last data on the Agena VIII, indicated it to be in a 164 nautical mile circular orbit with an orbital period just slightly over 90 minutes and on an orbital inclination of 28.87 degrees. The predicted decay time is for sometime August 15, 1967.

If and when Agena VIII enters the earth's atmosphere and burns up as predicted it will have circled the earth more than 8,200 times and traveled through space over 200 million miles.



TRUE IN THIS CASE—What goes up, must come down is an old adage which is true in this case. The Agena target vehicle for the Gemini 8 mission is shown during the first space rendezvous, March 16. This, the last piece of hardware from the Gemini program, is due to end its career in space soon.

'New Look' Prepares X-15 For Record Speeds



FROM BLACK TO WHITE—The color of the rocket-powered X-15 research plane at the NASA Flight Research Center has been changed from its familiar black to white. An ablative coating has been put on the X-15 in preparation for flights of about 4500 mph, about six and one-half times the speed of sound. The ablative material is designed to remove heat by reflection, insulation and charring. The ablator, pinkish in color, was applied first and then covered with a white paint that acts as a sealer. An ablator covered lid over the pilot's left windshield will open prior to the landing approach. Prior to the new high speed flight, flights at lower speeds to investigate the stability and control of the X-15 coated with ablative material will be flown. The flights are scheduled for sometime later this year.

